THE HARVEST
FEATURE ARTICLE

TOCCATA AND FUGUE IN CTRL-D
tips on becoming a keyboard virtuoso

by Paul Stadfeld

The most important peripheral available to the Apple is the human that programs/operates it. The interface between them is the keyboard. While it is true that efficiency can be improved merely by learning to type faster, efficiency can be greatly expanded by taking advantage of capabilities not generally availble to the user. This will require a knowledge of theory and operation of the keyboard logic.

Apple's keyboard logic is an implementation using a standard industry component (MM5740). Although the encoder chip can generate the entire 128 character ASCII code, only a portion of it is available on Apple's keyboard. The keyboard has what Apple deemed necessary to run the computer's BASIC language. As a result, several characters ([_) are not available. Also missing are such "frills" as lower case letters and a numeric keypad. This turns out to be a liability when using other languages (Pascal), text editors and business programs. One only needs to look at the Apple /// to see how important this is.

Never being one to rely on software solutions, I have done extensive hardware modification on my own keyboard in an attempt to bring it up to full potential. I have restored the missing characters, added a number pad (hexadecimal) and I can generate lower case (with a catch). A knowledge of soldering and an expired warranty should be considered minimum requirements before attempting any modifications.

The keyboard schematic can be found on page 101 of the Apple Reference Manual. Be aware that there are several different versions of the keyboard. Depending on the age of the computer, there may be differences between this schematic and your keyboard. As long as the encoder chip is an MM5740, this is not important.

On the left side of the scematic is a 9x10 array of signals leading to the encoder. The keys are represented by large circles located at about half of the points on the array. A key is merely a momentary contact SPST switch that will short together the two signals at the corresponding point on the array. When the encoder detects a short on any given point, it will output the ASCII code corresponding to that key. The control and shift keys are not located on this array. They connect to the encoder and their purpose is to modify the ASCII code generated by a switch on the array. Thus, up to four different ASCII codes are possible from a single key. Multiplied by 90 possible keys, 360 codes are theoretically possible. Since there are only 128 ASCII codes, many combinations give duplicate codes.

Here is where the implementation problem comes in Which combination of key, control and shift do you use to generate any given code? Efficiency requires the greatest number of unmodified keys. Economy requires the fewest number of physiacl keys. Most keyboards, including Apple's, are a compromise between the two. As an example, a carriage return (ASCII 13) is generated

when key X5,Y6 is pressed while holding the control key. Without the control key, this switch will generate an "M" (this is why the carriage return is refered to as CTRL-M). But key X2,Y2 will also give a carriage return without pressing the control key In fact, every control character from 0 to 31 has a corresponding single key point on the matrix. Only the most frequently used ones were given the single key implementation: CR,ESC,BS,NAK. The less frequently used codes are still available with the control key: CAN,LF,BEL. But it is software that determines how important the control codes are, such as the use of CTRL-D by DOS. The Auto Start Rom uses a CTRL-S (ASCII 19) to do a stop list. Most of the unused points on the array are single key control functions, CTRL-S among them. By connecting a switch to signals X7,Y3 I can now use a single key to do the stop list (it does make a difference)

How did I know that X7,Y3 generates an ASCII 19? By trying all 360 combinations and tabulating the result Table 1 lists the entire range available from the encoder.

Forty-three points on the array are unused There are more things missing than the single key control characters. The alpha characters are located between 64 and 95 in the ASCII code. This group includes six special characters: [\]^_@ . The encoder uses the shifted letters KLMNOP to produce these codes. A second set of keys also produce KLMNOP This second set, however, is like the rest of the alpha keys in that there is no change when the shift key is pressed. Therefore, when implementing these keys, a decision was made that MNP would use the shifted key and KLO would use the unshifted version It doesn't make any difference to the alpha set which K is used, but it means the left bracket cannot be generated. Also, the control codes corresponding to these characters (FS,US) cannot be entered either. The left bracket may have been left out deliberately because Microsoft BASIC doesn't support brackets like some other BASICs.

On my keyboard I disconnected the KLO switches and rewired them to produce the shifted versions. Unfortunately, this is a lot harder than it sounds. You must cut the runs connected to the switches and to do that the keys must be unsoldered because the runs are on the top side of the board Extreme care must be taken as the leads on the keys are very fragile (I broke two of them). To remove a key, take out the screw holding it to the board. Then turn the keyboard upside down and heat both leads simultaneously. The key will fall off the board without putting any mechanical stress on the leads The solder can then be cleaned from the holes. Even with the keys out, I still needed a Dremel with a long bit to reach between the other keys. Figure 1 shows a section of the Apple keyboard with the necessary changes indicated.

An easier method of obtaining the missing characters is to add more keys externally. To do this, a wire harness may be attached to the encoder chip socket and brought out of the Apple's case. Jameco Electronics sells an unencoded 19 key keyboard for only $14.95 (see their ads in most electronic and computer magazines, order part K19). With the help of Table 1, this keyboard can be encoded for any desired characters. Flat black paint and dry transfer lettering may be used to change the printed symbols on the keytops

When building an external keypad, human engineering should be taken into account. The need to shift your hand between the keyboards should be kept to a minimum Thus, the machine language programmer will want the full hexadecimal character set plus the colon and spacebar for use with the Apple monitor. Otherwise, the extra keys can be used for the comma, periiod and minus sign or even special control characters like the single key CTRL-S. I used wire wrapping to connect my keypad so that the keys may be changed if desired. I also removed my keyboard from the case and mounted it and the keypad on a piece of wood so that they are as close together as possible. This required a three foot ribbon cable to connect to the mother board, but it gives me the advantage of keeping the main computer on a seperate shelf.

Lower case characters can be created by shorting pin 34 of the encoder to ground with a switch. This is not worth the trouble because the keyboard input routine in the monitor converts all lower case letters back to upper case. Bypassing the monitor (with PEEK or GET) can get around this, but if you're going to write the software to handle this, you may as well generate the lower case with software.

The final modification will be discussed in theory only. There are several reasons for this. It involves adding chips to the mother board. Early versions have a breadboarding area on the motherboard. Later versions reduced the size of this area, there may not be enough room. It

won't work properly with a speeded up repeat key. It doesn't really add any capabilities to the keyboard. I added it to mine out of personal preference.

What the modification does is produce a click on the Apple's speaker whenever a key is pressed. It provides an audio feedback that the key has been depressed properly. This does not mean imply, however, that the monitor has recognized it.

Figure 2 shows how to add it into the speaker driver circuit. The 74L122 produces a pulse when triggered by the keyboard strobe. The XOR gate (74LS86) allows this pulse to be passed to the speaker regardless of the state of the speaker driver and does not affect the normal speaker operation.

In some cases, customizing can improve performance. But many times it merely tailors the machine to a user's particular needs. Fortunately, the Apple's hardware is relatively simple. Simple, that is, to an experienced technician. The purpose of the club is not only to provide information, but to bring people together to share their talents. Technical assistance for projects like these can usually be obtained through the club.

APPLE KEYBOARD ENCODER TRUTH TABLE

	X9	X8	X7	X6	X5	X4	X3	X2	X1
Y10	49	50	51	52	55	56	58	45	55
	33	34	35	36	39	40	42	61	55
	49	50	51	52	55	56	58	45	55
	33	34	35	36	39	40	42	61	55
Y1	0	5	18	53	54	57	48	12	56
	0	5	18	37	38	41	48	12	56
	0	5	18	53	54	57	48	12	56
	0	5	18	37	38	41	48	12	56
Y2	81	87	69	82	85	73	10	13	52
	81	87	69	82	85	73	10	13	52
	17	23	5	18	21	9	10	13	52
	17	23	5	18	21	9	10	13	52
Y3	27	6	19	84	89	79	80	28	53
	27	6	19	84	89	95	64	28	53
	27	6	19	20	25	15	16	28	53
	27	6	19	20	25	31	0	28	53
Y4	65	83	68	70	74	75	127	29	49
	65	83	68	70	74	81	127	29	49
	1	19	4	6	10	11	127	29	49
	1	19	4	6	10	27	127	29	49
Y5	1	7	20	71	72	76	59	11	50
	1	7	20	71	72	92	43	11	50
	1	7	20	7	8	12	59	11	50
	1	7	20	7	8	28	43	11	50

Y6	90	88	67	86	77	44	46	14	51
	90	88	67	86	93	60	46	14	51
	26	24	3	22	13	44	46	14	51
	26	24	3	22	29	60	46	14	51
Y7	2	15	21	66	78	46	47	32	48
	2	15	21	66	94	62	63	32	48
	2	15	21	2	14	46	47	32	48
	2	15	21	2	30	62	63	32	48
Y8	3	16	22	24	77	76	80	9	54
	3	16	22	24	77	76	80	9	54
	3	16	22	24	13	12	16	9	54
	3	16	22	24	13	12	16	9	54
Y9	4	17	23	25	78	75	79	8	57
	4	17	23	25	78	75	79	8	57
	4	17	23	25	14	11	15	8	57
	4	17	23	25	14	11	15	8	57

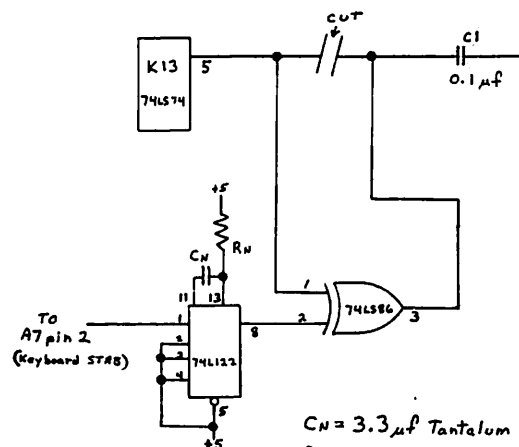READ ASCII CODE FROM X,Y COORDINATES

EACH COORDINATE HAS FOUR VALUES:

UNSHIFTED
SHIFTED
CONTROL
CONTROL & SHIFT

FIG. 1
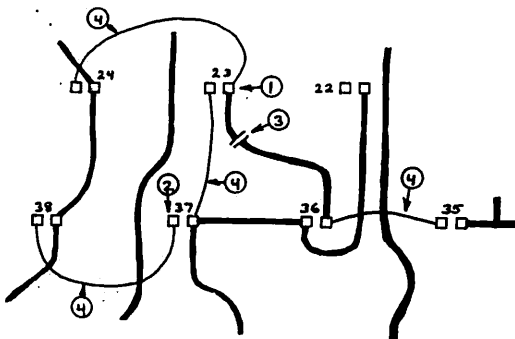
① cut all runs on BOTH pads on TOP side
② cut runs on this pad on TOP side
③ cut this run on BOTTOM side
④ add jumpers on BOTTOM side

FIG. 2

$C_N = 3.3 \mu f$ Tantalum
$R_N = 39 K \Omega$

These values may have to be adjusted for a suitable pulse width.

CLUB NEWS

President: Don Fuller-------312-991-6868
Vice Pres. Mike Robins------312-593-2709
Secretary. Joel Kurasch-----312-677-8358
Treasurer: James Wilson-----312-356-2196
Librarian: Mike Rose--------312-359-4306
Asst. Lib: Julian Vassay
Prog. Crm: Ken Rose

Club Addresses:

MEMBERSHIP, etc--BOX 787
            Palatine, Il. 60067

NEWSLETTER-------Dave Alpert
            880 Mellody
            Lake Forest, Il. 60045
            312-295-6078
            SOURCE#-TCA 640

BULLETIN BOARD---312-295-6926 daily
            as available and after
            10:30pm local time

Membership is open to all. Dues are $12.00 annually. New members are required to supply one disk or cash equivalent ($5.00) at the time of admission to the club. Disk not required of renewals. Membership applications are available from the club Secretary at the meetings or by mail.

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MEETING SCHEDULE

Regular Meeting   Sat. January 3
                    Sat. February 7
                    Sat. March 1*
                    *tentative

Officers meetings are held at the President's home on the Tuesday evening following the regularly scheduled meeting starting at 7pm.

Regular meetings are held at the Schaumberg'

Library, 100 Library Lane, Schaumberg, Il.

MEMBERS AIDE

The members listed below have volunteered to answer questions from club members who need a 'HOT LINE' type approach. Please try to be brief when you call as a courtesy to them.

Listed below are the names and phone numbers. The numbers after their names represent their special talent. PLEASE-no calls after 10pm.

Name	Phone	Talent
Earl Allen	312-837-9259	1-9
Mike Robins	312-593-2709	9-0
Paul Stadfield	312-359-2378	4-9
Guy Lyle	312-438-7941	4-9
Ted Roseman		
Mary Roseman	312-338-4833	2,3
Joel Kurasch	312-677-8358	9
Leon Alexander	312-725-5309	9
Gordon Banks	312-324-6184	0
Rich Lundeen	312-420-2008	2,3

Mach. Lang=1		Int. Basic=2	
Applesoft =3		Hardware =4	
Arrays =5		DOS =6	

All of above=9
PASCSAL=0 (not included in #9 designation)

When numbers appear befor a 9, the person is especially qualified in that area as well as in all other areas.

TREASURERS REPORT

Month ending November 30

Oct. Ending Bal.	$ 885.59
Membership	676.00
Newsletter	(155.00)
Disk Project	224.00
Other Expense	(153.24)

Nov. Ending Bal.	$1476.65

Respectfully submitted,
Jim Wilson, Treasurer
Dec 9, 1980

BIG CONTEST CONCLUDES NEXT WEEK

The club wishes to thank the participating dealers for their assistance and generosity in providing prizes for the contest. A complete list of contest winners and prizes will be published in our March issue.

Final deadline for the contest has been extended to include the January meeting to allow you to deliver your entries at that time. Remember, last day is January 3, 1981.

MORE CLUB NEWS

SECRETARY'S REPORT

Meeting of December 6, 1980
Attendance: 160

The meeting was called to order by Program Chairman Ken Rose. After welcoming all members and guests, he informed everyone that the deadline for the program contest has been extended to the January 3, 1981 meeting. (Get your cursors moving .) Ken also mentioned that the sign up for the first annual dinner dance has been a little slow. It is necessary to know as soon as possible how many are attending, so the proper arrangements can be made. Besides the good food and good company, there will be a performance by a mentalist, and a theatrical presentation by the NSAUG 'highly' irregurlars. He then turned the floor over to club president Don Fuller.

Don ask for the approval of the club for the purchase of a disk drive. This drive will be for the use of the Librarian to assist in the tasks of which that office consists. Don also proposed a new name for the club, the Northern Illinois Apple Users Group. Both of these matters were passed by the members in attendance.

Jim Wilson, club treasurer, gave a report on the club's finances. (The detail report is included in the newsletter.)

Mike Rose, club librarian, announced that we are up to 16 DOS disks, and 3 PASCAL disks, with club programs.

Jim Kecke then gave a presentation on computer assisted video recorded instruction. He demonstrated how the Apple could be used to control, and record the progress of individuals taking video instruction. Among the many features of the system were the ability to track the progress of each student, with detail reports on his success

rate, as well as having the computer rewind the video recorder over the last segment, and re-present it, if the questions on that portion were answered incorrectly. Attending members are now experts on the subject of drill bits.

Nomination's Committee chairman Joel Kurasch, then presented the committee's proprosed slate. Nominations were then thrown open to the floor, however, there were no additional nominations made. The slate for the offices (to be voted on at the January meeting) is:

President: Dave Alpert
Vice-President: Guy Lyle
Secretary: Joel Kurasch
Treasurer: Jim Wilson
Librarian: Jim Pfieffer

There was a surprise visitor, and an apple was had by all.

Guy Lyle then gave a talk on tone generation, using the APPLE. He showed how diferent notes could be 'played' by peeking or poking specified locations in memory. This could be done to either the speaker or the cassette output, or (fcc not withstanding), over the air waves using a portable radio.

Finally, Mr. Apple gave a short demonstration of the Apple /// , and answered miscellaneous questions from the audiance.

Respectfully submitted,
Joel Kurasch

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************************************
*                                  *
*           JANUARY                *
*           AGENDA                 *
*           JAN 3                  *
*                                  *
*                                  *
* 10:00-10:30 OPENING REMARKS      *
*             Don Fuller           *
* 10:30-11:00 ELECTION OF OFFICERS *
*             Joel Kurasch         *
* 11:00-11:30 AT YOUR SERVICE      *
*             B. Williams          *
* 11:30-11:45 BREAK                *
* 11:45-12:15 YOUR PAL, PASCAL     *
*             Herb Schulz          *
* 12:15-12:30 GAMES PEOPLE PLAY    *
*             Chuck Anderson       *
* 12:30-12:55 ASK MR. APPLE        *
*             Mike Robins          *
* 12:55- 1:00 THE LAST CLOSE OF    *
*             President Don Fuller *
*                                  *
*                                  *
*        GUESTS WELCOME            *
*-                                 *
************************************
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PREZ SEZ!

Another meeting full of good information.
Kudos and hats off to Jim Keck, Guy Lyle,
Chuck Anderson and Santa. Jim Keck's
demonstration of the application of the APPLE
in industry to train/teach highlights an
important aspect of the capabilities of the
man-machine interaction available with the
computer. Questions and comments indicate the
high interest in this area. Another
outstanding handout. from Guy Lyle and supurb
demonstration on his part. (My transister
radio will never be the same!) Chuck
Anderson's game demo (!). No points until you
have 3000!!! Tough!!! Santa? Well, Santa is
Santa is Santa... I know Ken Rose was
disappointed in his APPLE tho. Thanks to
Keith Cook, Computerland of Arlington
Heights, for the loan of the APPLE ///.

January 3rd's meeting will be very important.
Number one, we must have a quorum to vote on
the constitution.. BE THERE. Number two,
before the meeting is over, we will inform
you of the outcome of the voting for the 1981
officers. Mark the ballot elsewhere in this
issue and if you can't get to the meeting,
send it in (P.O. Box 787, Palatine, Il.
60067). This issue is coming out early so you
can mail in a ballot. 15 cents and an
envelope makes your voice heard. Ballots will
be available at the meeting.

A word about the candidates:

President: Dave Alpert. The ubquitous Dave is
the present newsletter editor. If you read
the newsletters, you know Dave.

Vice President: Guy Lyle. Guy was in
education until the APPLE came along and now
he is a professional programmer and
programming instructor. You've seen Guy's
expertise at several meetings.

Secretary: Joel Kurasch. Joel was "eased"
into the secretary's slot when the office
came into being earlier last summer. His
inimitable style of communication makes him a
natural. (See ya on the bulletin board!)

Treasurer: Jim Wilson. Jim was also "eased"
into the treasurer's slot earlier this year.
His penchant for forecasting and number
crunching is something else. (How many
members in how many years, Jim?!?!?!)

Librarian: Jim Pfeiffer. Jim tells me he's
going to "shape up, dress up and fill up" the
disk library in 1981. (Gonna set the disks on
the kitchen stove and strike a match to the
paper library?) Kidding aside, Jim has a
handle on the library's needs and will take
whatever steps necessary for improvements.

Newsletter Editor and Program Chairman are
appointed positions and will be announced by
the new president.

FEBRUARY BASH... Marty needs your
reservation. Today is not a minute too soon.
Right now!!! (Please?) If you don't respond,
ye ol' "NASUG" is out a lot of money (1 page
newsletters for how long???). Make your
checks payable to "NASUG" and send them to:

NASUG
C/O Martin Rutstein
480 Juneburg Road
Riverwoods, Il. 60015

We don't want to have another massacre Feb.
14th!!!

Many thanks to Mrs. Rutstein for the posters
reminding everyone about the Massacre.

Ken Rose has extended the dead line for the
programing contest to the end of the January
meeting. If you intend to enter, this will be
your last chance!

I trust you had a very Merry Christmas and
will have a Happy New Year.

Don

TELEPHONE SOFTWARE CONNECTION

Recently some software from this company has
made its way into the library of some persons
in the midwest area. Mr. Ed Magnin of TSC has
informed us that these programs have been
'stripped' of his copyright notice, "with the
possibility of creating the mistaken
impression that the programs are in the
public domain".

TSC has "acheived a substantial reputation as
a dealer in high quality products at
reasonable prices". Therefore, they wish to
remind anyone who has come across their
programs that "programs of Telephone Software
Connection are protected by Federal and State
Copyright Laws and that violation of those
laws may result in civil and criminal
penalties".

EDITORIAL

Dave Alpert

When I first joined the NSAUG, I wasn't expecting to get this involved. I didn't think I ever would for many reasons; not the least of which was that I was a rank beginner at computers. Since that officers meeting in April of 1979 where Ken Rose 'volunteered' me for the position of newsletter editor until now, I have steadily gained much knowledge from my involvement in the group. One can't help but learn something when typing in as many articles for the newsletters as I have. I have met many interesting and bright people who have helped in my education as well as become good friends.

20 newsletters later and I am passing along the position to Terry Tufts. I am happy to say that Terry has displayed a great enthusiasm toward this project. But, he can not do it alone! It is imperative that the membership continue to respond to the pleas for material for the newsletter. Terry's job will be that much easier if you continue to provide him with as much material as you provided for me.

I want to give a special thanks to Bob Dienethal for his help in providing the Velox copy of the logo and special character titles. Bob is a professional typesetter. Any club members who have need for this type of work should contact Bob at 359-5783.

Finally (never finally); I wish everyone a HAPPY $07BD.

NSAUG LIBRARY NOTES
by
George Makas

As a rule those of us who speak up in meetings have discovered our easy susceptibility to hoof-in-mouth disease; but I was astounded at the dispatch with which I was nominated, seconded, and elected to review the NSAUG disc library. Why me? All I asked was "Wouldn't it be possible to have some qualified person review and comment on programs that seem to be problematic for the average user?" My expertise is music education with a long suit in instructional strategies, only one of which is developing computer assisted instructional software. Before saying anything else, let me confess that I am intimidated and overwhelmed by the expertise of people like Mike Robins, Gary Lyle, Paul Stadtfield, Mark Pump, and about a dozen or so others who deserve equal mention whose names escape me for the moment.

Now that I have this off my chest, let's begin by considering some appropriate criteria for a software program. They are not unlike criteria for conventional instructional materials. The first criterion a programmer should consider is the qualifications of his audience. Would they be those qualities associated with a novice, intermediate, advanced, or expert users? Since it is impractical to have four versions of a program it behooves one to decide the appropriateness of a given program to any or all of the audiences and address himself to the lowest qualified audience.

A second criterion is the purpose of a program. For example, the STOPLIST program on disk volume three is a splendid aid to those of us who find it necessary to list integer programs. Applesoft users have it easy with

CONTROL-S. STOPLIST is only one of a number of utility programs found in our library. In addition to the utility programs there are those that are designed to be educational in an entertaining way, such as HANGMAN and noah's ARK. Others are strictly entertaining in a challenging way like the NUMBER-GUESSING GAME in which the player is pitted against the computer. Still others are demonstrations calculated to WOW us with the amazing complexities of computer science or technology in general or art. Business and personal programs contribute to the variety of our NSAUG library.

The third criterion that a programmer should consider is the selection of an appropriate strategy for a given program objective. Is the desired program designed to guide and control the user or is the user expected to control each routine as he seeks to achieve his purpose for a given session? Right here is the key to the value of a program. The skilled user prefers a lean program that achieves its objective quickly, efficiently, and cost effectively; the novice in his early development requires clear, detailed guidance as he becomes acquainted with a new, powerful tool.

The NSAUG library has numerous programs that are suitable for users ranging across all levels of experience, that meet a wide range of purposes and are more or less user-controlled thus insuring a range of experiences that will stimulate individual growth in computer usage. My next column will deal with some of my personal experiences with specific programs in our NSAUG library.
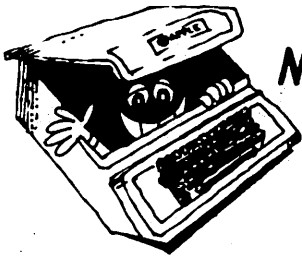
ASK
MR. APPLE

Mr. Apple:

How do you access the NSAUG bulletin board thru a modem? What other bulletin boards besides SOURCE and NETWORK (Micronet ed.) are available in the area and what are their phone numbers?

NSAUG has a Apple Bulletin Board System (ABBS) that can be reached by anyone who has a 110/300 baud modem. The current telephone number for the bulletin board is:

(312) 295-6926

This ABBS is up most of the time (when the SYSOP 'system operator' is not using his computer). The ABBS is self-assisting, and even the first-time user will have no difficulty using the system. Using the 'O' command from the function menu will access a list of over 100 bulletin board systems around the country. These lists are in area code order and by simple accessing the area code for the Chicagoland area (312) you can find out the BBS's in this, or any other area.

Mr. Apple:

What is meant by 'page 2, page 3, etc.' of memory?

This has got to be one of the most widely asked question from Apple users. The answer is very simple. A page in memory represents 256 bytes of address space. When one refers to page 1, he/she is referring to the addresses in memory from $100 to $1FF. Page 2 is represented by memory locations $200 to $2FF, and so on. (the '$' represents a hexidecimal number). Hope this clears up your question.

Mr. Apple:

Guy Lyle mentioned lookup tables. Is this only in machine language , or is it available in BASIC ? Is one solution to this in BASIC using a multiple IF-THEN statement?

Lookup tables can be utilized in most languages. There implementation depends on the desired results, and of course the language used to implement the lookup. In BASIC the use of DATA statements being read into an array and then searched through, using a FOR-NEXT loop text.mr apple all could be one example of a lookup table. Another example could be the use that you stated above, namely using multiple . IF statements. ONGOTO statements could also be implemented if the values to be searched are ordered numerics. In Pascal the CASE statement helps to ease this problem of lookup and of course the array scheme could also be used in this language. A lookup table is simply a list of objects that the programmer uses to search through to find a value.

PLAYING EAMON
Ron Unrath

Since we now have fourteen EAMON disks in the club library, the logical questionfrom some of you may be "How do I get started exploring the World of EAMON"?

My recommendation is that the first disk you should order from our librarian is the Dungeon Designer's disk. Beside having the tools to create you own adventures, this disk also has the complete player manual. This is very helpful in learning the intricate workings of EAMON. This is not to say that you can't play the game without it. There is also very good documentation within the introduction to The Wonderful World of EAMON located on the first disc.(Master disk or Beginner's Cave as it is usually called). It a matter of choice totally up to you. To acually start playing, boot the Master Disk, follow the instructions, and create and equip you character as best you can with the gold you have to spend. It is then time to go on to an adventure.

The Master Disk provides a Beginner's Cave to prepare your character for the twelve more rigorous adventures that lie ahead. Always run a new character through the Beginning Cave before going on to other adventures. That's all there is to it. The best way to learn is by starting up a character and running him through a few adventures. One thing I should warn you about: Don't get too attached to any character. Unfortunately, while wealth and expertise come rather quickly in EAMON, so does death.

AN NSAUG CHRISTMAS PRESENT

article by Ron Unrath

Dear NSAUG,
Merry Christmas. Enjoy the gift.
              Sincerly,

                Donald Brown

Who's Donald Brown and what did he give to
NSAUG you ask? I'll tell you. Don Brown is
the author of the Wonderful World of Eamon.
For those of you who have never sat in front
of your APPLE for hours on end playing
adventure games, EAMON is for you. Now is
your chance to become involved in Fantasy
Role-Playing Games.

When you enter the universe of one of these
games, you are no longer John (or Jane)
Smith, mild-mannered computer hobbyist.
Instead, you become a character in a land of
adventure, doing almost anything you want to.
In the land of EAMON, you will be a member of
the select Free Adventurers Guild, which is
made up of hardy individuals like yourself
who want to live by your wits, defeating
horrible monsters and finding glorious
treasures. Unlike most games, there is no set
goal for you to achieve, no way to win the
game. Instead, in EAMON, you have a lasting
goal to both better yourself and also get
rich. The only thing you need possess to play
EAMON is a large dose of imagination.

Interested, then let me give you the best
news. EAMON is not just a single game lost on
some club disk somewhere, no, not even one
full disk to enjoy. The Wonderful World of
Eamon comprises fourteen full disks. (I
spelled out 14 so you wouldn't think it was a
typing error). That's right folks, 14 disks.

You say you know all about adventure games,
that what YOU have always wanted to do is
write one youself but you don't know how to
program. Not to worry, Don Brown has taken
all the programming work out of writing an
adventure. One of his disks is a dungeon
designer. Just type in the descriptions and
presto, you've written an adventure. (By the
way, if you send a copy to Don Brown he will
be sure it is distributed all across the
country-with your name as the author).

Lastly, he has given us a tournament set of
games, special limited distribution. If any
of you feel an EAMON tournament would be a
new challenge. More on that later. In the
mean time enjoy the Wonderful World of
EAMON!! and Don, Merry Christmas and thanks
from all of us at NSAUG.

APPLE INSURANCE

Ron Unrath

Six months also I became the proud owner of a
11 pound baby APPLE. Like many new fathers, I
was concerned whether I had enough insurance,
insurance on the Apple that is. The first
thing I did was to call my good hands people.
I asked my agent if the APPLE was insured
under my homeowners policy if it is used for
business. The answer was a resounding "I'll
have to check on it." After several weeks,
and one or two more calls from me, it was
finally decided that the "personal use
portion" of my APPLE was covered. "What",I
asked, "Would happen if I had the APPLE with
me when I was out of town on business?" I had
some trouble getting a satisfactory answer on
that one and decided then, that I needed
special coverage.

I found out it wasn't as easy as I thought.
In eighty percent of my calls, the brokers
responded with "Oh, is that like a T.V. Pong
game?" I finally located someone who was
willing to do some digging into the matter.
After about a week, he called me back and
explained that a commercial underwriter of
large mainframes had agreed to consider
insuring the APPLE, but before making a
comittment they wanted to see some of the
technical specifications. I dropped a copy of
APPLE, the quarterly, in the mail and waited
for a reply. The insurance broker finally got
the word, Yes. He sent me a copy of the
letter the company sent him. I was very
gratified at their reply. In part the letter
said" I am quite surprised at the degree of
sophistication in fuctions available to
individuals with this type of equipment.....
we can easily develop a program to provide
coverage for these systems..... up to
$25,000.... we would be able to cover Media
on an agreed value basis, which would be no
problem for pre-packaged computer
programs..... and could provide coverage for
the replacement of personalized
programs....containing unique information
which would be difficult to reconstruct.....
on a valued basis. I feel that a rate of 2.5
% would be appropriate issued as either
three-year prepaid or three-year/annual
installment policies... (for a $5000
system)... we could write a three/year, All
Risk Data Processing Policy covering the
equipment with installments of $125 per
year." As I said, it was nice to finally find
someone who could realize the value of the
Apple and who would help us to protect that
value.

Oh yes, if your interested you may
write:William A. Panek & Associates, Ltd. 38
South LaSalle Street Suite 808 Chicago,Il.
60603 or better yet call Bill Panek at
312/263-5815.

Product Review

DAKIN5 Programming Aids 3.3

by Roberts R. Stewart

To say that I am impressed with this product would be a terrible understatement. This set of progamming aids is, in my opinion, worth the full asking price, even when it costs close to $100.00. The reasons for such a positive statement of my feelings are many, and I will now proceed to detail them for you.

The Aids come on a 16 sector disk with a handsome and complete documentation manual. The Aids consist of a group of utilities that will accomplish a number of very useful things. The utilities are:

1)the Lister will send any Apple Basic program to to your printer to be listed. It will utilize the full line capacity of your printer, perhaps with some minor modifications to the utility. The manual tells you the line to alter for this purpose. I have not had to alter mine yet, but I haven't used more than 80 columns of my Epson MX-80. At the top of each page is a header consisting of a Title, the Date and Time, and Page # of printout. It will list both Applesoft and Integer Basic programs.

2)the Line Cross Reference will generate a complete list of all line numbers used in an Applesoft program.

3)the Variable Reference will generate a list of every variable used in an Applesoft program. It lists each variable, with enough info for you to tell if it is $, %, DIMed, or a normal variable. Along with this, it prints a list of each line in which the variable is used. VERY USEFUL!!!

4)the Peeker DISPLAYS or PRINTS all or selected records of a random-access text file. Nice, but it would be better if you could update them also.

5)the Patcher allows you to display and update ANY sector on the disk. You can patch by specific track and sector, or you can access a file by using its FILENAME only!

6)the Copier will copy any file from one disk to another; only the name is needed to do this. *** The FID program supplied with DOS 3.3 is a much better program. FID will copy files when you only have one disk drive. The Copier REQUIRES two drives!

7)the Diskette Copy does a typical copy from one drive to another (you MUST have two disk drives!), except for some very nice 'bells and whistles'. First the program will verify your source disk! Then it formats the destination disk, and reads and writes all tracks. If you request, during program start-up, that you do not want DOS transfered, then tracks 1-3 will be formated only, and the VTOC will be set to access those 3 increasing your available disk storage by 32 sectors.

*** The first thing the manual says to do is to use the Diskette Copy program to make a working copy of your original DAKIN5 disk. I was unable to use their program to do this. Each time I tried, my disk's DOS wouldn't boot. I even used Apple's DOS 3.3 copy routine. It didn't work either. As a last resort, before calling for help, I used FID to transfer all the files to an INITed disk. That worked fine. I have since used the copy program on other disks with no trouble of any kind, so I am assuming that either my DAKIN5 disk has some problem in it, or the DOS on it has been modified, to prevent a successful copy, or there was some operator error (gigo). Have any other users had a similar problem?

8)the Array Editor allows you to create , edit, print and save text files. This is especially useful for the creation or alteration of EXEC files.

9)the Calculator can be added to your existing Basic programs with a BLOAD and protected by resetting HIMEM. It is a machine language routine the uses string constants as its I/O, is faster than doing the same thing with a Basic math operator, and will use 20 place accuracy! It will perform the basic math operations of +, -, *, and /.

10)the Screen Printer will output to your printer any and all text that is visible on your tv

display providin the cursor is on the screen and therefore the keyboard active.

11)the Prompter is a demo program of a DATA ENTRY subroutine used in all DAKIN5 utilities. By EXECing a DAKIN5 text program you can build this subroutine into your own programs. It is very sophisticate and therefore it is possible to out type it due to the amount of work being done. Among other things, the program will print a prompt line of periods to show maximum response length. You can specify the type of data to be expected, or even get so detailed as to which characters are allowed. It will place the period string wherever you specify on the text screen and insert a DEFAULT response which may be entered by hitting the Return key. If you are dealing with numeric data you can tailor it to insert comma's and a decimal point, and also have it LEFT-ZERO FILL the response field. All in all, a very powerful data entry subroutine which is very easy to implement in any program.

12)the Cruncher is certainly the most unique of all of these utilities. Basically, what the Cruncher will do is to compress any APPLESOFT program. It accomplishes this by removing all unreferenced REM statements, removing the comment from referenced REM statements, and merging lines of code which have no effect on the logical flow of the program. For example: you write a program which consists of 100 lines of code. Each line is a print statement that occupies about 20 characters of the line. After the Cruncher does its' work you will have about 10 lines of code, each line of which will contain about 10 or 11 print statements. They recommend that you use the Crunched program for execution, but keep the original, un-Crunched program to make any modifications. Some lines will be so long that you won't be able to add to them. If you have Program Line Editor by Neil Konzen distributed by Synergistic Software, these large lines are no real problem for you.

Well, there are my reasons. As you have read, there have been some problems, perhaps operator, but all in all this must rank as one of the most worthwhile set of programming aids that has ever come along. One more thing, some of the utilities (Line Cross Reference, Variable Cross Reference, and Cruncher) have a maximum number of lines or variables which can be referenced at one time. That maximum figure is 1024. If you ever have too many, the utility will inform you. DAKIN5 suggests you divide the program and do it in sections. Unless you are doing some VERY large and sophisticated programming there should be no chance of coming close to that maximum figure.

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Programming Aids 3.3 is copyrighted by Dakin5 Corporation
Program Line Editor is copyrighted by Neil Konzen

We love you – but........
JAN 3rd JAN 3rd JAN 3rd JAN 3rd
LAST CHANCE —
@ $25.–

Reservations for the St. Valentines Day Massacre Dinner will most likely be $40.– a couple after Jan. 3rd. This Increase will be necessary for last minute changes with caterers. The dinner will be held on Feb. 14th at the Deerfield Country Club. Send checks made out to: NSAUG

% Martin Rutstein
480 Juneberry Road
Riverwoods, Ill. 60015
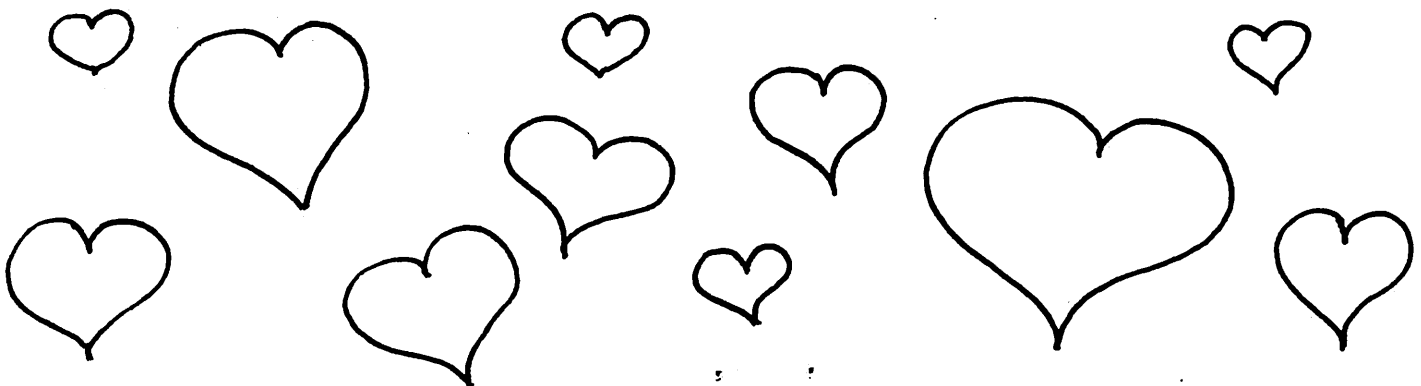
```
VOL TYPE    PROGRAM
001    FREE SECTORS =  9 (2.25X)
001 I BATTLESHIP
001 I BLACKJACK 1
001 I BLACKJACK(LL)
001 A CRAPS(SU)
001 I DR Z
001 I DRAGON 2
001 A ELIZA
001 A ELIZA(GL)
001 A HANGMAN
001 I MONOPOLY
001 I NSAUG VOL 1
001 I NUMBER GUESSING GAME
001 A POKER(KR)
001 A SWORDS AND SORCERY II(KR)
001 A SWORDS AND SORCERY(KR)
001 I TIC TAC TOE
001 I YAHTZEE(KR)
002    FREE SECTORS =  4 (1X)
002 I BESSEL.FUNCTIONS
002 A CHEMIST(KR)
002 I NOAH'S ARK
002 I NSAUG VOL 2
002 A ONE PAGERS
002 A OREGON TRAIL #2(MAR)
002 I PLOT.3-D
002 B PLOT1
002 B PLOT2
002 B PLOT3
002 B PLOT4
002 B PLOT5
002 B PLOT6
002 B PLOT7
002 B PLOT8
002 I SLOW LIFE-4(SN)
003    FREE SECTORS =  2 (.5K)
003 I APPLE.HIRES.PAK
003 A APPLESOFT SHAPE LOAD(EA)
003 I ASSEMBLER TUTORIAL
003 I BASE CONVERSION
003 A BASE CONVERSION(GL)
003 I BSTAT
003 B CHARACTER SET
003 I COMPUTER SIMULATOR
003 I DISK-DISK TRANSFER
003 I DISK-TAPE TRANSFER
003 B FREE SPACE
003 I HELLO
003 I INTEGER SHAPE LOAD(EA)
003 T LIBFILE
003 A LIBRARIAN
003 A LOWER CASE(FP)
003 A MULTICOPY
003 I NSAUG VOL 3
003 A NUMBER CONVERSION(RS)
003 A OCTAL TO BINARY CONVERTER
003 I SHAPE CREATE(EA)
003 I SHAPE MAKER INSTRUCTIONS(GL)
003 I SHAPE MAKER(GL)
003 B SLOW LIST
003 B STOPLIST
003 B SUPER.A$1000.13FF
003 I SUPER.HIRES.GRAPHICS
003 I SV16 DISSEMBLER
003 B TERMINAL
003 I TERMINAL INSTR ?
003 I TEST PADDLES(EA)
003 I TITLE CREATE
003 I VEYMAN'S BSTAT
004    FREE SECTORS = 55 (13.75X)
004 B ALLEY CAT
004 I ANIMATIONS
004 A APPLE ALARM
004 A APPLE CLOCK(JR)
004 I APPLE GREETINGS
004 I BIORHYTHM
004 I BIT BUCKET
004 A BUZZWORD
004 A CC
004 A CCOUT
004 I COLOR DEMOS
004 I COLOR SKETCH
004 I COLOR.KINESIS
004 I COLOREATER 2(PS)
004 I DAZZLER III
004 A HALLOWEEN(PS)
004 I IQ TEST

004 A MENSCHEL HI-RES
004 I MIKE'S COLOR SCOPE
004 I MIKE'S KALEIDOSCOPE
004 I MIKE'S TONE GENERATOR
004 A MOIRE (PS)
004 I MOIRE.TAPESTRY
004 B MUSIC
004 I MUSIC 1
004 I MUSIC INT
004 I NSAUG VOL 4
004 I PAINTING
004 I POET
004 A PUMPS PATCHES FP
004 I PUMPS PATCHES INT
004 I SLEEPYTIME
004 B SLEEPYTIME.$800 DFFR
004 I SPIROLATERAL
004 I STAR BATTLE SOUND EFFECTS
004 I STORE WINDOW DISPLAY(ED)
004 I T.V. PATTERN GENERATOR
005    FREE SECTORS =  4 (1X)
005 A ADDRESS BOOK
005 A AMORTIZATION(GL)
005 A APARTMENT FINANCE(EA)
005 A APPLEFILE
005 A BERT THE BARKEEP(KR)
005 A BUDGET
005 A FAST FOURIER TRANSFORM
005 A HEAPSORT
005 A LISTS
005 I MAILING LIST(ED) HIMEM
005 I MINI TEXT-EDITOR
005 A MORTGAGE PAYMENT(RS)
005 I NETFLOW.COST
005 I NSAUG VOL 5
005 A PASS THE BUCK(KR)
005 A PAY.ROM/V4
005 A PUMPS PATCHES FP
005 I PUMPS PATCHES INT
005 A TOTAL
005 A TRAVEL PLANNER(KR)
006    FREE SECTORS = 188 (47X)
006 I A-B-C
006 I BACKWARDS
006 I BALL
006 A BALLISTIC(ED)
006 I BATTLESHIP
006 I CHASE
006 I COLOR DOTS
006 I COLOR STROBE LO
006 I COLOREATER 1(PS)
006 A COMPUTER ACCURACY(EA)
006 I CRAZY LINES
006 A CREEPYS
006 A DECIMAL ROUNDOFF(ED)
006 A DISK CLEANUP ROUTINE
006 B DOSPATCH
006 I DOTS
006 A HARTLEY EDITOR
006 I HELLO-PSYCH INT(ED)
006 I HIRES DRAW
006 I HIRES MEM.ORGANIZATION
006 I HLIN
006 A INTEREST RATE OF LOAN(RS)
006 I LASER BOMB(SN)
006 I LORES DEMO
006 I MONTE CARLO SIMULATION OF DIFF
006 A NEAT PATTERNS
006 I NSAUG VOL 6
006 I PADDLE CHECK
006 I PADDLE TEST(BN)
006 A PRIME NUMBER CHKR
006 I QUILT
006 I RANDOM WORD
006 I SCREEN
006 I SHAPE TABLE GENERATOR
006 I STARS
006 I STARTREK INSTRUCTIONS
006 A THREE-D MOVE
006 I TURING
006 A ZODIAC(EA)
007    FREE SECTORS =  3 (.75X)
007 A ANIMAL(KR)
007 I BLOCK(SN)
007 I BREAKOUT
007 B DC(ML)
007 B DC1(ML)
007 I DEATHHOUSE(SN)

016    FREE SECTORS = 38 (9.5K)
016 A AUTOTAPE
016 T CONSTAR
016 A CREAT.ADD
016 T CURRENTFILE
016 A EDIT.FILE
016 I HELLO

007 I DEMOSLANDER 1(SN)
007 I DEPTH CHARGE
007 B DK(ML)
007 B DK1(ML)
007 I DRAGON MAZE 2
007 A HAMURABI(EA)
007 B HIRES
007 I MASTERMIND
007 I MICROCHESS INSTRUCTIONS
007 I NSAUG VOL 7
007 B PH(ML)
007 I PHASOR ZAP
007 I PONG
007 I ROBOT CHASE(EA)
007 I ROCKET INTERCEPT 1(SN)
007 I ROCKET INTERCEPT 3(SN)
007 I SAUCER WARS
007 I SEA WAR
007 I SPACE DOCKING
007 A STAR WARS GAME(KR)
007 I SUB COMMAND
007 I SUPER HIRES CHESS
007 I TIC TAC TOE(SN)
007 I UFO
007 A WUMPUS(KR)
008    FREE SECTORS = 202 (50.5K)
008 I APPLE MATH(EA)
008 I COLOR MATH
008 A GEOMETRY(EA)
008 I KEYBOARD SYNTHESISOR
008 A KINEMA
008 I LIFE
008 I MEMORY(EA)
008 I MORSE CODE(ED)
008 I NSAUG VOL 8
008 I OREGON TRAIL(EA)
008 A PUMPS PATCHES FP
008 I PUMPS PATCHES INT
008 I SIMPLE SIMON II(ED)
009    FREE SECTORS = 18 (4.5K)
009 I AIRPORT(ED)
009 I ANDY'S MAZE RACE
009 A BAGELS
009 A DEPTH CHARGE (TEXT)
009 I DRAGON MAZE II
009 I DUCK SHOOT
009 A ELIZA
009 I GAMES
009 A GAMES.SULLIVAN 32K
009 I INTERSTELLAR
009 A LUNAR
009 I NSAUG VOL 9
009 I OREGON TRAIL
009 B ROCKET LANDING
009 I SUB KILLER
009 I TARGET SHOOT
009 A WORLD POWER 6
010    FREE SECTORS = 33 (8.25K)
010 A ARTILLERY
010 I CLOCK

010 I BATTLESHIP VERS 78.0723
010 I BUG
010 A CALENDER
010 I DEATH RACE
010 I DISK SPACE
010 I DUCKSHOOT
010 I FRACTAL GRAPHICS
010 I HEX CODES LIST
010 I MEMORY SPY
010 I MIDWAY
010 I MT. FUJI-PA
010 I NSAUG VOL 10
010 A PHONETIC RESPONSE PROCESSOR
010 A PUMPS PATCHES FP
010 I PUMPS PATCHES INT
010 I SEARCH
010 I SKIP'S APPLE
010 I SPACEWAR
010 I SW SOUNDS
010 I TOOTLE
010 I TURTLE GRAFIX
010 I TYPING PRACTICE
010 A VIDEOTAPE CATALOG(KR)
011    FREE SECTORS = 55 (13.75K)
011 A ALEX'S CALENDAR PART 1
011 A ALEX'S CALENDAR PART 2
011 B CHARACTER SHTABLE

016 A HELP
016 A MERGE
016 I PGM TRANSFER
016 I PGM TRANSFER II
016 I RUN-ME-FIRST (INSTRUCTIONS)
016 A SEARCH.SORT
016 B SPLIT CAT

011 T CHOICE FILE
011 A CREAT ADD
011 A EDIT FILE
011 A FILES 6 15
011 A HELP
011 A MERGE
011 I NSAUG VOL 11
011 A SEARCH SORT
011 B SHTABLE LOC
011 A TRANS COPY
012    FREE SECTORS = 225 (56.25X)
012 I APPLE TYPER
012 I APPLE TYPER II
012 B ASCII $4000 $800
012 A ASSEMBLER
012 T COLORS
012 B DRIVER B
012 B DRIVER S
012 I EPROM CODE FOR LOWERCASE MOD
012 A FLASH CARDS
012 B HEX-ASCII B
012 B HEX-ASCII.S
012 A HEX-DEC CONV
012 I HI-RES DUMP
012 B HI-RES DUMP B
012 B HI-RES DUMP 5
012 T INTERNATION APPLE CORE
012 B LOMEM
012 B LOMEM
012 A MENU
012 A NEW H-D
012 A NEW HEX-DEC CONV
012 T PRESENTS
012 A S/MENU
012 A SHAPER
012 A SHAPING UP
012 I SPACE TRIP
012 T THE APPLE ORCHARD VOL I
012 I TO APPLE-WRITER.
013    FREE SECTORS = 68 (17K)
013 B BESL.PIC
013 I CAPABILITIES
013 B CHARI.PIC
013 B CHURCHILL.PIC
013 T DATA
013 B DOL.PIC
013 I FILE EXAMPLE
013 I GRAPHICS
013 I HELLO
013 I MUSIC
013 I PICTURES
014    FREE SECTORS = 229 (57.25K)
014 A APPLE II+ MINI/ASM
014 I DISK HELPER
014 A DISK SORT
014 A IAC UTITLIES
014 I IMPROVED CATALOG
014 A INTEGER @ $6000-TAPE
014 A INTEGER @ $A000-TAPE
014 B INTEGER BASIC-DISK
014 B INTERGER SUPER LOCK
014 B RWTS
014 B SUPPLEMENT
014 I TUBS
015    FREE SECTORS = 98 (24.5K)
015 I BLACKJACK
015 I BOLD PRINT DEMO
015 A CATALOG MANAGEMENT
015 A CATALOG MANAGEMENT - EDIT
015 I DISK ACCESS UTILITY
015 I HELLO
015 A HI-RES GRAPHICS DISPLAY
015 A HI-RES SCREEN ERASER
015 T LISTER
015 A MENU BY DAVIS & FREEMAN
015 B ORBIT
015 T PROG.FILE
015 T PROG.LIST
015 A PROGRAM LISTER WRITER
015 A REM STRIPPER INFO
015 B SANDY'S REM STRIPPER
015 B SATELLITE
015 B SATELLITE1
015 B SILENTYPE BOLD PRINT
015 A SINEWAVE DEMO
015 I SLIDE SHOW VIII
015 B SMALL HOLE
015 A TELEPHONE DIALER (NO MODEM)
015 A TEXT FILE READER (REVISED)
```

NSAUG DISK ORDER FORM

Please fill out and give (or mail) top copy to the club librarian with the proper fee. If mail order, enclose check only. NO CASH. Indicate the volume numbers of the disk you want below.

( ) ( )

Date ordered_____

Total no. of disks ordered_____

         * $3.50=$_____

Mail svc.* $1.50/   =$_____

Total enclosed $_____

* Librarian's use only *

Date (ready-mailed)_____/_____/_____

(   )Cash (   ) Amount $_____

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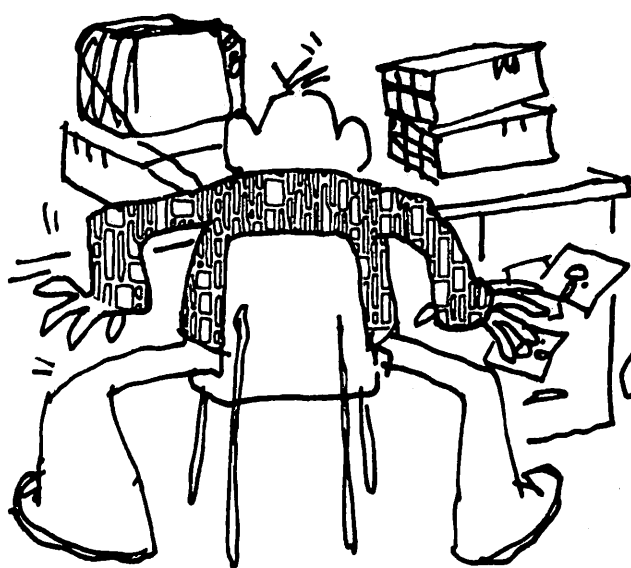
Daddy's playing Pascal again. That's where you see how many dots you can get before it goes beep!